MONTGOMERY COLLEGE
Department of Mathematics
Rockville Campus

MA 103 KATIRAIE QUIZ #3 Form B (FORMA & B) SECTIONS (2.4, 3.1, 3.2) Spring 2007

NAME SOLUTION SCORE: ____/ 20

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1. Find the slope - intercept form of a line parallel to $y=\frac{-1}{8}x+7$, passing through (- 64, -4)

$m=\frac{-1}{8}$

$-4=\frac{-1}{8}(-64)+b$

$-4=8+b \Rightarrow b=-12$

$y=\frac{-1}{8}x-12$

2. In 1999 Toyota sold 1.7 million vehicles. This number increased to 2 million in 2004.

a) Find a linear function that models the data.

(1999, 1.7) (2004, 2) $m=\frac{2-1.7}{2004-1999}=0.06$

$1.7=0.06(1999)+b \Rightarrow b=-118.24$

$y=0.06x-118.24$

b) Determine the year when Toyota sold 2.1 million vehicles by solving a linear equation.

$2.1=0.06x-118.24$

$+118.24 \quad +118.24$

$120.34=0.06x \longrightarrow x=\frac{120.34}{0.06}=2005.7$

c) Predict the year when Toyota may sell 2.5 million vehicles. $\approx$ 2006

$2.5=0.06x-118.24$

$2.5+118.24=0.06x \Rightarrow x=2012.33$

$\approx$ the year is 2012

3. Find the slope - intercept form of a line perpendicular to $-2y-3x=1$, passing through (- 4,- 3)

$-2y = 3x+1$

$y = \frac{-3}{2}x + \frac{-1}{2}$

$m = \frac{-3}{2} \Rightarrow m\perp = \frac{2}{3}$

$-3 = \frac{2}{3}(-4) + b \Rightarrow b = \frac{-1}{3}$

$y = \frac{2}{3}x - \frac{1}{3}$

4. **Solve the following equations:**

a. $\frac{3x}{5} - \frac{2x}{4} = \frac{1}{6}$ Multiply by 60

$\frac{180x}{5} - \frac{120x}{4} = \frac{60}{6}$

$36x - 30x = 10$

$6x = 10 \Rightarrow x = \frac{5}{3}$

b. $\frac{3x+1}{7} = \frac{2x-1}{2}$

$2(3x+1) = 7(2x-1)$

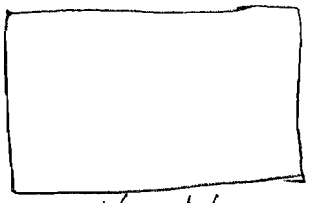
$6x+2 = 14x-7$

$+7 \quad +7$

$9 = 8x$

$\frac{9}{8} = x$

5. **The length of a rectangular room is 4 feet more than its width. If the perimeter of the room is 105 feet, find the width and length of the room.**



$X$ = width

length $= X+4$

$2(X+4) + 2(X) = 105$

$2X+8+2X = 105$

$4X = 97$

width $= X = 24.25$ feet

Length $= 24.25+4 = 28.25$ ft